



Project Identification Form (PIF) entry – Full Sized Project – GEF - 7

Promoting Climate-Resilient Livelihoods in Rice-Based Communities in the Tonle Sap Region

Part I: Project Information

GEF ID

10177

Project Type

FSP

Type of Trust Fund

LDCF

Project Title

Promoting Climate-Resilient Livelihoods in Rice-Based Communities in the Tonle Sap Region

Countries

Cambodia,

Agency(ies)

FAO,

Other Executing Partner(s)
Executing Partner Type

Ministry of Agriculture, Forestry and Fisheries (MAFF) and Ministry of Environment (MOE)

Government

GEF Focal Area

Climate Change

Taxonomy

Influencing models, Demonstrate innovative approach, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Stakeholders, Type of Engagement, Participation, Information Dissemination, Consultation, Partnership, Communications, Awareness Raising, Strategic Communications, Local Communities, Beneficiaries, Civil Society, Academia, Non-Governmental Organization, Community Based Organization, Private Sector, Large corporations, Individuals/Entrepreneurs, SMEs, Gender Equality, Gender results areas, Access to benefits and services, Access and control over natural resources, Participation and leadership, Knowledge Generation and Exchange, Capacity Development, Gender Mainstreaming, Gender-sensitive indicators, Women groups, Sex-disaggregated indicators, Capacity, Knowledge and Research, Innovation, Knowledge Generation, Learning, Knowledge Exchange

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 2

Duration

60 In Months

Agency Fee(\$)

848,580

Submission Date

4/4/2019

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCA-1	LDCF	7,632,420	52,781,367
CCA-2	LDCF	1,300,000	9,482,186
	Total Project Cost (\$)	8,932,420	62,263,553

B. Indicative Project description summary**Project Objective**

Rice based communities in the Tonle Sap region of Cambodia reduce their climate vulnerability and increase their resilience to climate change through an ecosystem based, market-driven approach.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
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Component 1: Improving the enabling environment for climate change adaptation in the rice and related priority sectors through integrated policies and planning	Technical Assistance	Strengthened national and community-level climate change adaptation policies, planning frameworks, and governance	1.1. National and subnational institutions have improved capacity for comprehensive planning and implementation	LDC F	1,300,000	7,166,183
		<i>Indicators:</i>	1.2. Cross-ministerial and cross-sectoral coordination in climate change adaptation and agriculture improved, in collaboration with the Cambodia Climate Change Alliance			
		<i>- the number of MAFF-approved projects that incorporate climate resilience (increase from the baseline)</i>				
		<i>- five provincial-level vulnerability assessments conducted</i>	1.3. Vulnerability assessments in the five targeted provinces conducted, incorporating AEZ climate modelling for longer-term adaptation planning			
		<i>- a study on water availability and use in five targeted provinces completed, and recommendations for integrated water management delivered</i>	1.4. Policy and regulatory alignment, and mainstreaming of climate change adaptation enhanced			
		<i>- MAFF policies supporting the uptake of socially and environmentally sound contract farming and the SRP Standard established</i>	1.5. Financial and incentive mechanisms through MAFF for climate-resilient agriculture developed			

Component 2: Supporting resilient production systems in rice-based communities for improved livelihoods	Investment	Increased resilience and adaptive capacities of production systems and the natural resource base	2.1. On-farm diversification for improved resilience against climatic variations demonstrated and scaled out	LDC F	3,500,000	24,405,421
		<i><u>Indicators:</u></i>	2.2. The supply and uptake of premium market seeds with tolerance to climatic and biotic stresses increased			
		<i>- annual income from rice-based activities in targeted households (increase from the baseline)</i>	2.3. The uptake of climate-resilient on-farm practices for rice production increased			
		<i>- number of rice farmers engaged in cultivation of at least one other crop or fish or livestock alongside rice production (increase from the baseline)</i>	2.4. Credit access for rice farmers improved			
		<i>- ha of rice land cultivated with premium market climate-resilient seed varieties developed by CARDI (increase from the baseline)</i>				
		<i>- ha of rice land laser-levelled and under integrated pest management (increase from the baseline)</i>				
		<i>- the total value of farmer loans (increase from the baseline)</i>				

Component 3: Scaling up adaptation technologies and practices in selected value chains through partnerships, markets and investments	Investment	Scaling of adaptation innovations, technologies and new markets, and scaling up agribusinesses, employment and empowerment at community-level	3.1. The performance of agricultural cooperatives improved via human capacity building	LDC F	3,207,067	24,405,421
		<u>Indicators:</u>	3.2. Contract farming models negotiated between agricultural cooperatives and rice processors demonstrate and upscaled, incorporating crop insurance			
		<i>- the number of agricultural cooperatives trained in business management and accounting (increase from the baseline)</i>	3.3. Participatory Guarantee Systems (PGSs) established as an interim step towards SRP group certification			
		<i>- tonnes of rice produced under contract farming for premium markets providing sales (e.g. stable demand or higher price) incentives (increase from the baseline)</i>	3.4. Post-harvest handling, collection, storage and drying facilities at the processor level enhanced and climate-proofed			
		<i>- ha of rice land SRP certified</i>	3.5. Credit availability for rice processors improved			
		<i>- annual rice storage and drying capacity of rice processors (increase from the baseline)</i>				
		<i>- the total value of processor loans (increase from the baseline)</i>				

Component 4: Building effective knowledge management, innovations and monitoring & evaluation systems	Technical Assistance	More effective knowledge management and assessment of adaptation innovations	4.1. Project management mechanisms established	LDC F	500,000	5,286,528
		<i>Indicators:</i>	4.2. Tools, methods and approaches for monitoring and tracking project progress adopted			
		<i>- project M&E systems in place</i>	4.3. Information and M&E systems enhanced			
		<i>- project communication strategy and plan developed</i>	4.4. Inter-regional knowledge sharing fostered			
		<i>- project newsletter produced and disseminated regionally on quarterly basis</i>	4.5. Innovation and new market opportunities fostered			

Sub Total (\$) 8,507,067 61,263,553

Project Management Cost (PMC) ⓘ

LDCF 425,353 1,000,000

Sub Total(\$) 425,353 1,000,000

Total Project Cost(\$) 8,932,420 62,263,553

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	ADB	Loans	Investment mobilized	30,000,000
GEF Agency	IFAD	Loans	Investment mobilized	15,000,000
Donor Agency	GIZ	Grant	Investment mobilized	5,700,000
GEF Agency	FAO	Grant	Investment mobilized	4,675,000
Donor Agency	USAID	Grant	Investment mobilized	1,615,000
Others	CGIAR	Grant	Investment mobilized	1,067,866
Donor Agency	BMZ	Grant	Investment mobilized	467,687
Donor Agency	EU/SIDA/UNDP	Grant	Investment mobilized	1,000,000
Others	CIAT/WMO	Grant	Investment mobilized	2,240,000
Government	MAFF/MOE	In-kind	Recurrent expenditures	498,000
			Total Project Cost(\$)	62,263,553

Describe how any "Investment Mobilized" was identified

Not Applicable

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	LDCF	Cambodia	Climate Change	NA	8,932,420	848,580	9,781,000
Total GEF Resources(\$)					8,932,420	848,580	9,781,000

E. Project Preparation Grant (PPG)

PPG Amount (\$)

200,000

PPG Agency Fee (\$)

19,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)
FAO	LDCF	Cambodia	Climate Change	NA	200,000	19,000
Total Project Costs(\$)					200,000	19,000

Core Indicators Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Part II. Project Justification

1a. Project Description ⓘ

1) *The adaptation problems, root causes and barriers that need to be addressed*

Country context

The Kingdom of Cambodia is situated on the southern part of the Indochina peninsula, spanning a total land area of 181,035 km². The country is located within the tropical Indomalayan ecozone and the topography consists of the low-lying central plains that includes the Tonle Sap basin and the Mekong River flood-plains surrounded by mountainous and highland regions, and a lengthy coastline in the south. Cambodia is bisected by the Mekong River Basin, with the country's hydrology dominated by the Mekong River and its major tributaries, including the Tonle Sap River, which joins the Tonle Sap Lake^[1]. The Mekong's water disperses into the surrounding wetlands of the central plains and heavily affects the seasonal nature of the Tonle Sap Lake, including both regular monsoon flooding in the basins and localized droughts in the plains.

Cambodia has a tropical monsoon climate, characterized by a rainy season and a dry season. The rainy season, which lasts from May to early October, accounts for 90% of annual precipitation. The dry season, from November to April, brings drier and cooler air from November to March, and then hotter air in April and early May. The geographical incidence of extreme weather events such as droughts and floods varies, and while floods affect lowlands areas, the geographical distribution of droughts is widespread. Storms occur more frequently between August and November, with the highest frequency in October. The country is rarely exposed to the full force of tropical cyclones and typhoons due to its surrounding mountain chains.^[2]

The population of Cambodia is estimated at 16.3 million (2019) and is growing at an average annual rate of 1.46% - among the highest in Southeast Asia.^[3] Close to 80% of Cambodia's population live in rural areas; more than half of the population lives in the central plains and about 30% around the Tonle Sap Lake.

Cambodia is a Least Developed Country (LDC) and poverty remains a serious constraint to the country's economic development. Although poverty rates have declined significantly in recent years, the economy remains vulnerable to external shocks and natural disasters. The rural communities in particular are characterized by poverty, hunger and malnutrition, with approximately 90% of the country's poor living in the countryside^[4]. Seven of Cambodia's 25 provinces are classified as severely to extremely food insecure, and an additional seven moderately insecure. Households engaged in agricultural activities have the

highest incidence of poverty. Rural poverty and food insecurity are closely tied to limitations in terms of access to land, forests, fisheries and other natural resources, as well as to limited opportunities in the industry and service sectors. Poor health, combined with high healthcare costs, is the major cause of household impoverishment.^[5]

Cambodia's economic development is heavily dependent on the country's rich natural resource base. Agriculture remains an important sector of the economy, representing roughly 23% of the Gross Domestic Product (GDP) in 2017.^[6] The agriculture sector is also the main source of livelihood for the majority of the rural population and is essential to poverty reduction and household food security.

Climate risks and vulnerabilities

Cambodia is among the countries' most vulnerable to climate change risks and impacts due to its i) agrarian-based economy, ii) weak human, technical and financial resources, iii) insufficient physical infrastructure and iv) limited access to technologies. Over the past decade, Cambodia has witnessed more frequent and severe floods, droughts and windstorms, which have resulted in increasingly high physical and economic impacts, in particular in rural areas.^[7] As a LDC with low adaptive capacity, climate change is posing serious challenges to the country's socio-economic development. Low capacity and insufficient access to technologies, compounded by an inadequate policy environment, keep producers in a situation of high vulnerability to climate risks and lead to a gradual decline in agricultural livelihoods.

Cambodia experienced severe floods in 2011, 2013 and 2014, and severe droughts in 2012 and 2014, affecting the productivity of the agriculture sector.^[8] During 2015-2016 dry season, there was a severe drought occurring attributed to the El Nino phenomenon.^[9] In October 2013, heavy rainfall resulted in flash floods which had serious impacts on over half a million people living in rural communities. More than half of Cambodia's provinces were impacted, with the Mekong region being particularly affected, as the river's water levels rose with the rainfall. An assessment indicated that the damage and loss caused by the 2013 floods amounted to US\$ 356 million, of which US\$ 153 million was the estimated value of the destruction of physical assets (damage) in the affected areas, and US\$ 203 million the estimated losses in production and economic flows. Similarly, the 2012 drought affected 11 out of the 24 provinces and negatively affected tens of thousands of hectares of rice growing areas.^[10]

Recent climate vulnerability assessments show that Cambodia will experience changes in temperature and rainfall patterns by 2050, with significant consequences for communities and ecosystems. Elevated risks from increases in the frequency and intensity of floods and droughts, combined with widespread poverty and low adaptive capacity, leave the country as highly vulnerable. Most communities in Cambodia are classified as vulnerable to extremely vulnerable. Vulnerability assessments at the community scale highlight that Cambodia's high population growth rate, particularly in densely populated areas, without any improvements in infrastructure and socio-economic conditions, could further increase vulnerability in the country. Furthermore, the effects of extreme climate events on community livelihoods are likely to be severe, given the low adaptation capacities of rural populations to cope with climate hazards. While local communities might be aware of possible coping and adaptation strategies, the lack of financial resources generally prevent them from being implemented. The agriculture sector and especially rice farming is most impacted by climate hazards, with about 90% of economic losses from extreme

weather events is due to crop harvest failure.^[11] Studies have shown that rice yields can be expected to decrease by 10% for every 1°C increase in minimum temperature during the growing season.^[12] As the majority of Cambodians are farmers and their livelihoods mainly depend upon subsistence agriculture, the vulnerability of people living in rural areas is particularly high and may continue to rise, in the absence of measures to improve preparedness and planning.

Although the impact of climate change will vary in different parts of Cambodia, projections indicate that in the long run it will intensify Cambodia's exposure to increased incidence of sudden onset events (cyclones, storms, lightning, riverine and flash floods, landslides), and slow onset disasters (changes in hydrology, droughts, changes in rainfall patterns, loss of biodiversity, soil fertility, deforestation, increase in mean temperature and sea-level rise).^[13] The variability of weather events caused by climate change, such as increased uncertainty of seasonal patterns and increased range of extremes, also means farmers are less able to rely on traditional practices and need more accurate climate information.

Cambodia's agriculture sector

Almost 70% of the Cambodian population is engaged in agriculture, and it is estimated that around 60% of these workers are women. The majority of farmers are smallholders, with 21% of households being landless and a further 45% owning less than one hectare¹⁴. Agricultural production is predominantly rain-fed and characterized by low input and low-moderate soil fertility, making the sector highly dependent on climatic conditions. Rice is Cambodia's main staple and provides approximately 70% of nutritional needs. It is the principal crop of farmers and the production accounts for 15% of agricultural value added, while paddy occupies 75% of the cultivated land. Rice production, processing, and marketing are estimated to employ 3 million people, or more than 20% of the country's working-age population.^[14]

Around 80% of rice production originates from local varieties that are cultivated during the rainy season. High-yielding varieties are mainly planted during the dry season, and account for the remaining 20% of the production. Rice productivity is highly dependent on weather conditions, and both flooding and droughts have resulted in significant decreases in production. Yields have gradually increased over the last decade but remain among the lowest in Asia.

Around 50% the paddy produced in Cambodia is exported to neighboring countries (primarily Vietnam and Thailand) for milling and further distribution, which represents a huge lost opportunity for Cambodian rice millers and traders to add value, export directly, and create employment locally. Limited capacities to comply with premium quality and food safety standards is also preventing Cambodian producers from accessing the international rice market despite strong market demands.^[15]

Four other food crops (corn, cassava, soybean and mung bean) occupy approximately 14% of Cambodia's crop area. The remaining 3% is used for growing vegetables, sesame, peanut, sugarcane, sweet potato, potato, tobacco and jute. Animal husbandry has been traditionally practised at the household level. Cattle and buffalo provide most of the agricultural draught and manure for fertilizing crops, and constitute essential household assets. Many rural families raise pigs and chickens at the household level.^[16]

Instability in agricultural yields is considered to be higher in Cambodia than in most other Asian countries, and Cambodia's agriculture is extremely vulnerable to unexpected and changing patterns of floods and drought. Low yields coupled with natural disasters contribute to temporary food shortages. Cambodia's agriculture is the most affected sector to the risks and impacts of climate change. Agricultural production and livelihoods, particularly the majority of smallholders in rural areas, are affected by a variety of climate hazards. Smallholder farmers are particularly vulnerable to climate impacts since (i) their hazard exposure is high (ii), the common pattern that there is only one rice crop per year, most often planted under rainfed conditions, and (iii) the fact that the per hectare agricultural production, particularly of rice, is significantly lower than in other South East Asian countries. The high hazard exposure, coupled with low production levels, threatens livelihood security of smallholder farmers in the country, particularly during and after the emergency period.^[17]

The increased variability in climate conditions pose a challenge to Cambodia's predominantly rain-fed paddy rice, and limited technology diffusion, increasing labor shortages together with high energy costs and infrastructure gaps is also constraining the economic development opportunities in the rice sector. Rice and other agricultural value chains remain fragmented due to low private sector investments and an unfavorable agribusiness environment. Irrigation systems are inadequate, and critical value-chain infrastructure (rice collection, storage and transport) remains weak and underdeveloped. Access to storage structures and drying facilities are still limited, leading to inefficiencies in the value chain and high levels of post-harvest losses.^[18] Without any technological improvements along the value chain, increased humidity levels and erratic rainfall patterns are likely to increase post-harvest losses due to spoilage while also causing food safety concerns.

In the last decade, pesticide imports for Cambodia increased by 285 times, and the national use of pesticides rose from 200,000 litres in 2002 to 3.4 million litres in 2004.^[19] This trend is continuing: Cambodia formally imported 13,800 tonnes more pesticides in 2016 compared with 2015,^[20] and in a 2016 survey, 100% of farmers surveyed from five provinces in Cambodia applied some amount of pesticide in each season.^[21] Cambodia is seen as a 'dumping ground for unwanted and dangerous pesticides'^[22]: in 2016, there were 522 trade names (for 133 common names) of chemical pesticides available in local markets, most of them unregistered.^[23] The pesticides are often used incorrectly due to lack of labelling in Khmer and insufficient extension services at the village level; this has negative effect on their effectiveness, as well as negative environmental impacts (particularly water and soil contamination) from over-use and incorrect disposal.^[24]

Project site context

The five provinces targeted by the project (Pursat, Battambang, Banteay Meanchey, Siem Reap and Kampong Thom) are located in the Mekong-Tonle Sap basin. They are Cambodia's major rice growing areas, representing around 30% of total harvested rice area in the country; in 2018, this consisted of 1,168,756 ha of wet-season rice and 177,417 ha of dry season rice. Of these harvested rice areas, about 80% are rain-fed, making them particularly vulnerable to extreme climate events such as drought and flood. A 2016 household survey in four out of the five provinces showed that all participating rice farming households had experienced at least one drought and one flood event in five years prior to the survey. Drought or flood incidences reduce income and, ultimately, food consumption - in one case estimated at 15-20% among the poor.^[25]

The Tonle Sap area is divided into three zones (see the map provided in Annex A). Zone 1 (Lower Floodplain) is the area closest to the lake, with the elevation of 0-6 metres above mean sea level (amsl). This zone thus experiences the most intensive flooding, with average maximum water depth ranging from 3 to 7.6 m.[26] Zone 2 (Upper Floodplain) is located in the upper floodplains, with a 3-km buffer beyond the National Roads (>10 m amsl). This zone experiences less seasonal flooding than Zone 1, enabling regular rice cultivation and other agricultural activities.[27] Both Zones 1 and 2 contain village settlements. Zone 3 (Urban) includes urban settlements as defined in the Population Census,[28] including provincial capitals and towns located close to National Roads. This zone has higher elevation and experiences little or no regular flooding. Overall, the three zones have very different interactions with the Tonle Sap and its annual flood pulse. The flood pulse has greatly impacted on the floodplain functions and vegetation,[29] and the flood characteristics have largely shaped the traditional livelihoods in the area.

The Tonle Sap is a complex hydrological system, composed of i) a 2,600 km² permanent shallow lake, ii) a 120 km-long Tonle Sap River that connects the lake to the Mekong, and iii) a 12,876 km² floodplain covered with a mosaic of natural and agricultural habitats that the Mekong River replenishes with water and sediments annually. The extreme seasonal inter-phase between flood and drought in the floodplain determines major habitat types, geochemical processes, ecological interactions, and human activities interplaying in the Tonle Sap.[30]

The majority of people living in Tonle Sap area are engaged in subsistence agriculture. Their vulnerability is exacerbated by their weak asset base (limited land holdings and high incidence of landlessness, high rates of debt, low soil fertility, lack of access to agricultural inputs) as well as weak access to social institutional assets (lack of access to credit, weak extension services, and limited access to markets and value-added opportunities). The low socio-economic capacities of the targeted communities leaves them highly vulnerable to climate risks and hazards, which pose severe challenges to their livelihoods.

Intensification and poor practices of subsistence rice cultivation in the Tonle Sap floodplain has driven declines in globally important populations of threatened species, and also in populations of species that are beneficial to farmers and critical to ensure ecosystem resilience. Cultivation of multiple crops of dry-season rice each year, without rotational fallows and/or weedy field margins, leaves no habitat for ground-nesting birds such as the critically endangered Bengal florican (*Houbaropsis bengalensis*), which in Southeast Asia is restricted to the Tonle Sap region. In addition, fields that are just stubble during the high water season make structurally poor habitat for the fish on which many communities depend.

The Tonle Sap ecozone is considered one of the most vulnerable parts of the country to climate change. Climate projections show that by 2050, target communes will be significantly hotter and wetter in the wet season, and significantly hotter with similar levels of rainfall to existing conditions in the dry season. Dry-season conditions will be particularly severe: with anticipated increases in temperature, the area will experience higher levels of surface and soil water losses, with a consequent projected increase of 0.5 drought months per year.

These projections have far-reaching implications for agricultural systems, including crops, cropping patterns and livestock. More intensive and longer duration droughts will have serious impacts on human and animal health, food security and livelihoods, as ponds, wells, canals and stream are expected to dry out for longer periods. Similarly, expected increased severity of floods and storms will result in losses in crops and livestock, and destruction of property and critical infrastructure.

The target communes have currently little adaptive capacity to respond to existing and future climate impacts. They are characterized by poorly constructed housing, rudimentary infrastructure with limited access to energy and value chain technologies, inappropriate crops and cropping patterns, and weak connections to markets.

Key barriers

The key barriers to build climate resilience into the livelihoods of Cambodia's rice-based communities in the target provinces include the following:

Lack of effective weather forecasting, agro-met services and early warning systems. The lack of these services is resulting in farmers planting rice at incorrect times and/or selecting maladapted seeds, leading to loss of production and reduced yields. The lack of effective weather forecasting is also a barrier to the introduction of crop insurance, which would reduce farmer income losses caused by severe floods or droughts.[31]

Lack of effective irrigation. Many existing irrigation systems are inadequate to deliver water to the field or suffer from a lack of economic viability, lack of operation and maintenance of secondary and tertiary canals, lack of efficient on-farm water management strategies and weak institutional capacity of Farmer Water User Communities (responsible for operation of tertiary canals).[32] There is limited knowledge of water resources available for irrigation and other uses, resulting in i) irrigation policies and projects that are ill-informed, and ii) overall lack of integrated water management in targeted provinces.[33]

Lack of effective and socially and environmentally sound contract farming arrangements. The lack of contractual agreements between smallholder rice growers and rice processors (which are also rice exporters) is due to a number of factors, including insufficient rice drying and storage facilities at farmer and processor levels, and insufficient miller access to credit to allow timely purchasing of paddy. The resultant lack of steady demand for rice from processors leads farmers to sell large proportions of their fresh paddy to rice traders from Vietnam and Thailand, thus reducing incentives for them to i) use high-value climate-resilient seeds (which tend to be more expensive), ii) engage in climate-resilient and more sustainable practices (e.g. water conservation techniques such as land levelling) and iii) take up systems of internal control for rice cultivation. Apart from being a barrier to greater climate resilience, the absence of socially and environmentally sound contract farming is also an obstacle to greater levels of domestic processing and exports, as well as cultivation of rice certified as organic and/or sustainable, representing a significant lost opportunity for farmers and processors to increase their incomes.[34]

Lack of extension services and financing for uptake of climate-resilient on-farm practices and value chain development. A range of on-farm practices can reduce rice farmers' vulnerability to climate risks and hazards and enhance their capacities to engage in value chains, including i) water-saving practices such as alternate wetting and drying (AWD) and laser land-levelling, ii) integrated pest management, iii) improved use of fertilizer, iv) technologies to reduce post-harvest losses, v) introducing other crops and food systems for diversification (fish, livestock), and vi) greater use of climate-resilient rice seeds. However, limitations in quality government extension services at commune and village levels (delivered primarily by volunteers who are very few in number) results in farmers' inadequate awareness and skills in these practices, whilst lack of access to credit - due to relatively high interest rates charged by micro-finance institutions (MFIs) - also contributes to the lack of uptake.^[35]

2) The baseline scenario and any associated baseline projects

The Government of Cambodia has put in place a comprehensive policy framework and ambitious roadmap to promote economic development and poverty alleviation in the agriculture sector while also ensuring greater resilience to climate change. Climate change impacts to the agriculture sector are addressed in the Cambodia Climate Change Strategic Plan (CCCSP), which provides the Government's overall framework for addressing climate change. The CCCSP is being implemented in three phases and is currently in the second phase of implementation. Under the CCCSP phase two the Cambodian Government is working to mainstream climate change at the sector level based on sector specific plans and identify opportunities to finance further adaptation activities. The relevant CCCSP sector plan for the agriculture and land-use sectors is the Climate Change Priorities Action Plan for Agriculture, Forestry and Fisheries Sector 2016-2020 (CCPAP). The CCPAP outlines a number specific priorities and actions that support implementation of Cambodia's contributions under the Paris Agreement, Sendai Framework and the 2030 Agenda for Sustainable Development.

In terms of additional baseline government activities to address challenges for agricultural development, the **Agriculture Sector Strategic Development Plan 2014–2018** aims to enhance the competitiveness of the sector through greater agricultural productivity (intensification), diversification, and commercialization. Measures include the (i) expansion of agricultural extension services, improvement of seed quality to respond to market needs, and better postharvest technology; (ii) creation of an enabling environment for the private sector and adoption of good agricultural practices; (iii) strengthening of policies that will support agricultural businesses and exports, and improve product quality and standards (e.g., sustainable rice platform); (iv) bolstering of the analytical capacity of the National Agricultural Laboratory; (v) rehabilitation of the infrastructure of state farms and agricultural development centers; (vi) implementation of the strategy and action plan for climate change adaptation and mitigation; and (vii) promotion of private investment in agriculture through public-private partnerships (PPPs).^[36]

The main national and sectoral plans are further described in Section 7; however, the outlined priority areas and strategies for intervention which are of relevance to this project have yet be operationalized.

Relevant baseline projects

The project will receive co-financing from a number of different sources, as outlined in the following table. This information will be updated during the project preparation phase.

Table 1: Baseline projects, description and relevance to the proposed LDCF project

Donor	Project name	Baseline project description	LDCF additional value	Amount (\$)
ADB/ IFAD	Tonle Sap Poverty Reduction and Smallholder Development Project - Additional Financing Period: 2018-2023	The project aims to enhance agricultural productivity and improve access to markets in 270 target communes of 7 provinces (Banteay Meanchey, Battambang, Kampong Cham, Kampong Thom, Prey Veng, Siem Reap and Tboung Khmum)) through investments in climate-resilient productive infrastructure, building capacity in disaster risk management of the communities and commune councils, and creating an enabled environment for agricultural productivity, diversification and climate resilience. [37]	Close coordination and collaboration with this project will be conducted to prevent duplication in the same communes, and take advantage of potential synergies. In-depth consultations will be undertaken during PPG to strengthen complementarities and a strategy for collaboration will be prepared,	30,000,000
IFAD	IFAD/Government's programme "Agriculture Services Programme for Innovation, Resilience and Extension (ASPIRE)	The programme works to establish an improved model of extension services for Cambodia that will help smallholder farmers contribute to broad-based economic growth. ASPIRE is a national programme that will ultimately be implemented through Provincial Departments of Agriculture in ten provinces. Component 2 and 3 of ASPIRE are dedicated to capacity development for extension services and improved extension services.	The proposed initiative will build on the existing extension system supported by ASPIRE, with emphasis on mainstreaming climate resilient practices in the extension services, and facilitating value chain linkages.	15,000,000
USAID	Rice IPM in Cambodia (EPIC) – Implemented by IRRI Period: 2020-2023	IPM package for rice in Cambodia aims to develop a rice integrated pest management package validated for Cambodian biophysical conditions and co-designed with Cambodian farmers and other rice value chain actors. The validated rice IPM package will reduce both pre-harvest loss due to pests, w	The proposed project will work with EPIC on promotion of integrated pest management in targeted communes under Component 2.	1,615,000

		seeds, and diseases and the levels of pesticide use in rice production by highlighting cultural methods, available resistant varieties, and biological control tactics (both conservation and augmentative biological control).		
CGIAR	Rice Agri-Food Systems CRP, RICE (GRISP Phase II) - - Implemented by IRRI Period: 2018-2022	The project aims to reduce poverty and hunger, improve human health and nutrition, adapt to climate change, promote women's empowerment and youth mobilization, reduce rice's environmental footprint, and enhance the climate resilience of rice-based farming systems. In Cambodia, GRISP Phase II concentrates on upgrading rice value chain by conducting studies on varietal profile needed by farmers, validating straw management, post-harvest processing and farm mechanization options and developing business models for successful scaling out of these technologies.	The proposed project will collaborate with GRISP Phase II in designing and implementing improvements in the rice value chain under Component 3.	966,616
CGIAR	CGIAR Research Program 7: Climate Change, Agriculture and Food Security (CAAFS) Phase II (2019-2022) - Implemented by IRRI	The project aim is to catalyse positive change towards climate smart agriculture (CSA), food systems and landscapes by increasing adoption of climate smart agricultural varieties and practices. In Cambodia, CCAFS has a limited activity in one province.	The proposed project will make take into account CCAFS' experience when selecting climate-resilient practices to be promoted under Component 2.	101,250
BMZ	Leveraging Diversity for Ecologically Based Pest Management (VERDE): Smart deployment of resistance genes and ecological engineering to prevent rice yield loss and reduce pesticide dependency (pending donor approval) - Implemented by IRRI	The project aims to strengthen Cambodian research institute's capacity to cope with increasing frequency of pests and diseases outbreak due to the changing climate by developing breeding, pathogen and pest surveillance and pest ecology research within CARDI. Accelerating adoption of stress-tolerant varieties in Cambodia Phase II strengthens the rice seed system (particularly the private sector's involvement) by distributing the climate smart-rice seeds varieties in Pursat. Battambang. Siem Reap. and Kam	The project will coordinate with VERDE during design and implementation of Component 2, particularly relating to integrated pest management and promotion of climate-resilient rice varieties.	467,687

	by IRRI Period: 2019-2022	pong Thom provinces. The project contributes to development of the enabling policy environment for seed health certification, capacity building of small and medium seed producers as well as breeding efforts of climate smart traits into local varieties.		
EU/ SIDA	Cambodia Climate Change Alliance (CCA) Programme – Implemented by UNDP	The programme aims to strengthen national systems and capacities to support the implementation and coordination of Cambodia's climate change response. The CCCA will renew its phase beyond 2019, but with focus on other sectors (environment, energy, rural development, public transport and education) and less activities on agriculture. Strengthening overall coordination of climate change actions, and knowledge management will still be part of the CCCA's new phase.	Cross-ministerial and cross-sectoral coordination in climate change adaptation and agriculture will be improved by taking stock of the achievements of the CCCA and collaborating with CCCA to target gaps (Component 1). The project fills the gaps of CCCA by focusing on the agriculture.	1,000,000
FAO	FAO/EU CAPFISH Capture Fisheries Period: 2019-2023	Part of the EU-funded Cambodia Programme for Sustainable and Inclusive Growth in the Fisheries Sector. FAO will be implementing Component 1 of the complementary support, aiming at strengthening management, conservation and control systems in Cambodia inland and marine fisheries, in the context of the collaborative management adopted by the Cambodia and its on-going decentralization process.	The project will collaborate with CAPFISH in promotion of rice-fish systems at the farm level to improve smallholders' resilience to climatic variations (Component 2). Strengthening of capacity and functioning of the community fish refuges (CFR), which play crucial role in the rice field fisheries, will be the most relevant activity to the proposed project. The project will work in coordination with CAPFISH to mainstream climate resilience into the CFR, and rice-field fisheries.	4,000,000

<p>TCP/RAS/3703 Building disaster and climate resilience of a agriculture sector to achieve the SDGs in Asia</p> <p>Period: 2019-2020</p>	<p>The project aims at strengthening capacity of agriculture sector in selected Asian countries (including Cambodia) for disaster and climate vulnerability and risk assessment (VRA) and use of risk information to plan/implement disaster risk reduction (DRR) and climate change adaptation (CCA) actions.</p>	<p>The VRA tools developed under this project can be used by the proposed initiative to conduct the vulnerability assessment and to inform the development and implementation of DRR and CCA action plan</p>	<p>125,000</p>
<p>TCP/CMB/3702: Commodity value chain study to accelerate inclusive markets for smallholders</p> <p>Period: 2019-2020</p>	<p>The project aims at producing evidence-based analysis and robust recommendations to support policy development within MAFF and the Ministry of Commerce, and ongoing project implementation in support of targeted value-chain development through nationwide comprehensive value-chain analysis of the six key agricultural products (cashew nut, Keo Romeat mango, leafy vegetables, maize, chicken and pig).</p>	<p>The outcome of this project will be taken into account when selecting and promoting non-rice crops for farm diversification (Component 2).</p>	<p>150,000</p>
<p>FAO and ADPC: Developing a sub-regional drought risk management programme for the Greater Mekong Sub-region</p> <p>Period: 2019-2020</p>	<p>The project supports demonstration and ground-pooling of a regional drought and crop yield monitoring and forecasting system. This includes integrating key features of the Agriculture Stress Index System (ASIS), Regional Drought and Crop Yield Information System (RDCYIS) and other relevant tools, and analyzing institutional capacities in order to develop appropriate approaches to promote effective interventions at national, sub-national, local and farm levels to strengthen drought risk monitoring and forecasting.</p>	<p>This baseline investment provides initial capacity development of the national and provincial institutions Collaboration with this project will be sought when improving national and provincial level capacities in weather forecasting, agro-met services and early warning systems (Component 1). The tools (combination of the ASIS and RDCYIS) being piloted, if proved successful can be scaled up in the project targeted areas for drought risk monitoring and management.</p>	<p>100,000</p>

	FAO/ECHO Early Warning Early Action and Shock Responsive Social Protection	The project aims at reducing disaster impacts and enhancing resilience of ASEAN communities including Cambodia by scaling up forecast-based financing/early warning, early actions and advancing disaster responsive social protection system. The project will support risk analysis, early warning and development of thresholds/triggers for the implementation of early actions and disaster responsive social protection system.	This baseline investment potentially provides useful tools, approach and risk information to inform and support on the ground activities.	300,000
GIZ	Regional Economic Development IV & V Period: 2018-2024	The project works on local economic development and employment promotion. It follows an integrated approach, working with public administrations on district, municipal and provincial level, with small and medium enterprises as well as farmers/producers from the rice, cassava and vegetable/fruit value chains. The programme provides assistance to public sector institutions and private sector entities through capacity development and technical assistance. Farmers are supported to introduce sustainable farming methods to improve their livelihoods and income generation.	The proposed project will significantly leverage RED activities on the promotion of climate-resilient rice-based livelihoods in selected target provinces, and will take into account and build on efforts in SRP certification (Component 3).	2,000,000
	Development of Micro, Small and Medium Enterprise Support Programme Period: 2018-2021	The aim is to promote MSME business skill development and public-private dialogue in order to improve the business environment for MSMEs. In addition, it assists with TVET (Technical and Vocational Education and Training) activities and policy advice.	The lessons from this project will be taken onboard when designing capacity-building activities for agricultural cooperatives (Component 3). The proposed project will also help to develop capacities for private sector entities, particularly small and medium enterprises, to professionalize and expand the rice value chain.	500,000
	Improvement of Livelihoods	The project supports land recipients in Social Land	The proposed project will	2,000,000

<p>elihood and Food Security I & II</p> <p>Period: 2014-2021</p>	<p>d Concessions in preparing the land for farming, improving soil conditions, and engaging in agriculture by providing infrastructure through food for work schemes, small scale machinery, knowledge and skills to help and improve the families' food security through diversification and awareness raising on nutrition. The project is also promoting the value chain of organic certified rice, cassava, cashew nut and mung bean through contract farming in Kratie, Tbong Khmum, Kampong Thom, Kampong Chhnange and Kampong Speu.</p>	<p>It collaborate with this initiative when designing and implementing activities for promotion of climate-resilient on-farm practices, establishment of PGSs and working towards SRP certification of targeted farmers.</p>	
<p>Multisectoral Food and Nutrition Security in Cambodia</p> <p>Period: 2015-2023</p>	<p>Through a multisectoral approach, the programme aims to improve the nutrition of women and young children in Kampong Thom and Kampot province. The programme consists of three fields of action. The first field is improving the quality of nutrition services by providing training and awareness on a balanced nutrition and basic hygiene. The second field is diversifying nutrition and food production by providing trainings for farmers, building their capacity to grow a more diverse range of crops and linking them to the market to generate income. A key priority for the programme is to encourage families and schools to create their own kitchen gardens. Organic gardening, prevention of contamination in food production, preparation and storage and promoting good hygiene practices and a healthy environment are just some of the topics covered in the training sessions. The third field supports the National Strategy for Food Security and Nutrition and the Scaling Up Nutrition initiative for Cambodia.</p>	<p>The activities of the proposed project in the Kampong Thom project will coordinate with this initiative. Lessons learned in ensuring that women benefit from the project and farm diversification activities will inform the design of Component 2.</p>	500,000
<p>ASEAN Regional Integration Support – Cambodia Trade</p> <p>Period: 2019-2023</p>	<p>Support to Cambodia to better take advantage of the opportunities offered by trade, export facilitation and promotion in particular, for economic growth as well as the ASEAN economic integration focusing on: 1) Improving customs, trade facilitation and standards with a view to a better integration of Cambodia into the AEC and to accelerate the Cam</p>	<p>This initiative will complement the efforts of the proposed project to promote cultivation of premium market seeds with tolerance to climatic and biotic stresses incre</p>	500,000

		bodian Government's implementation of the WTO Trade Facilitation Agreement (TFA) 2) Strengthening institutional capacities and improve regulatory practices with a view to achieving a more transparent, predictable, inclusive and competitive business environment. 3) Enhancing private sector engagement, notably SMEs, and better preparedness for the AEC's seamless, single economic space.	ased, by improving exports arrangements and improving access to markets.	
Regional Economic Integration in ASEAN Period: 2019-2021	This consists of four regional projects operating in ASEAN Member states with a focus on CLMV: 1. Promoting Sustainable Agricultural Value Chains 2. Strengthening Consumer Protection 3. Promoting Competition Policies and Trade in Services 4. Strengthening Regional Structures for SME Promotion	The proposed project will build on this initiative's efforts in promoting sustainable agricultural value chains in targeted provinces.		200,000
Applying seasonal climate forecasting and innovative insurance solutions to climate risk management in the agriculture sector in SE Asia (DE Risk) Implemented by CIAT, WMO and University of Southern Queensland Period: 2018-2022	The project is focused on developing resilient climate risk management systems, best practices, and insurance products that will shield smallholder farmers and businesses engaged in the rice, coffee, sugar, cassava, and grazing industries across the value chain from physical and financial disaster associated with climate change. It is also assisting ministries in developing adaptation and risk management strategies. The project is taking place in Cambodia, Laos, Myanmar and Vietnam [38]	The LDCF additional investment will leverage and strengthen the efforts in developing climate risk insurance systems in the targeted areas.		2,240,000 [39]

A number of additional projects related to climate resilience of rice and other crops are underway, and will be built upon and collaborated with to ensure complementary between the LDCF project and other ongoing initiatives. In particular, the project will utilize the Sustainable Rice Platform (SRP) to promote partnerships and coordination with other relevant initiatives. During the PPG phase, in-depth consultations will be undertaken to establish collaborations and practical modalities for capturing synergies and coordinating with the ongoing activities so that duplication is avoided and LDCF resources build on the progress and achievements made to date through such programmes and initiatives. The most relevant initiatives are described in detail below.

Cambodia Agricultural Value Chain Program (CAVAC) primarily focuses on construction of irrigation schemes for rice production, targeting areas where river surface can be diverted via canals to farms farther away (including Kampong Thom province). The schemes cover secondary and tertiary canals, as well as electric pumps; the latter have lower operating costs and GHG emissions compared to diesel-powered pumps. During 2010-2015, 20 irrigation schemes were constructed, delivering year-round water to over 19 000 households; another 18,000-22,000 households are expected to be reached during the second phase (2016 – 2021). CAVAC also trains suppliers of pesticide and fertiliser on their correct use; the information is then passed onto the farmers. CAVAC also actively promotes climate-resilient rice varieties developed by CARDI by: training agricultural cooperatives contracted by Amru (a large-scale rice processing and exporting company) to produce and cultivate the seeds; and promoting the use of mechanical seeders to reduce labour and seed requirements, thus enabling farmers to purchase the more-expensive climate-resilient seeds.^[40]

ADB's recently approved **Climate-Friendly Agribusiness Value Chains Sector Project** (USD 141m) seeks to develop productive and climate-smart agribusiness value chains in rice, maize, cassava, and mango industries in Kampong Cham, Tboung Khmum, Kampot and Takeo provinces. This includes rehabilitating irrigation and water management infrastructure (off-farm irrigation systems, on-farm rainwater harvesting ponds, and drip irrigation) to climate-resilient condition; upgrading agricultural cooperatives' value-chain infrastructure (drying, processing, and storage facilities); deploying climate-resilient crop varieties, with involvement from CARDI and IRRI; training farmers in climate-smart agriculture practices; demonstrating laser land-levelling; and supporting MAFF and the Ministry of Commerce in creating a favourable policy environment for agribusiness to mobilize the private sector participation through PPPs and socially and environmentally sound contract farming. The proposed project will concentrate on the Tonle Sap lake ecosystem and thus geographically complement the Climate-friendly agribusiness value chains project. The proposed LDCF project will also model how the Sustainable Rice Platform (SRP) standard for Sustainable Rice Cultivation^[41] can create an incentive mechanism for the adoption of climate-smart varieties and practices by linking producers to high-value export markets.^[42]

World Bank's recently approved six-year **Cambodia Agricultural Sector Diversification Project** (USD 101m) will seek to develop diversified and climate-resilient agriculture value chains in 12 provinces, including Battambang and Siem Reap. This will include supporting the preparation and implementation of initiatives in non-rice value chains (including a \$30m credit line and a \$10m matching grant facility); rehabilitation and upgrading of irrigation systems linked to the supported initiatives; training of Farmer Water User Communities (FWUCs) and municipalities to operate and maintain the financed irrigation infrastructure; and rehabilitating rural roads connected to the supported initiatives.^[43]

World Bank's USD 53m **Cambodia Sustainable Landscape and Ecotourism Project (SLEPC)** (currently in the last stages of approval) will seek to improve the management of protected areas and community protected areas (PAs) in Cardamom Mountain – Tonle Sap areas, thus reversing degradation of forestry and fishery resources and increasing the economic returns from these resources. The project will cover Pursat, Koh Kong, Battambang, Kampong Speu, Kampong Thom, Siem Reap, and Kampong Chhnang provinces, and will include developing and implementing a spatial forest monitoring, reporting and enforcement framework and strategy; encouraging private sector and community participation in ecotourism and NTFP value chain enterprises; finance the zoning, demarcation and registration of six PAs and development of management plans for each of these; and financing connectivity infrastructure (rural roads, development of ecotourism corridors, and linkages with main markets) to allow for an increase in visitor numbers in selected PAs.^[44]

IFAD's **Accelerating Inclusive Markets for Smallholders (AIMS, USD 61m, 2017-2023)** aims to prosper smallholder farming households, by strengthening value chains and increasing profitable links to agri-businesses and markets. AIMS targets the support to increase profits to farmers and businesses from inclusive value chains for multiple higher value products; increase private investment in priority value chains from smallholders and agri-businesses; and increase capacity of national and sub-national institutions to design and deliver inclusive agriculture market development initiatives. AIMS initially focuses on value chain development of quality assured rice, cassava, silk, vegetables and backyard chicken.

ADB's **Climate Resilient Rice Commercialization Sector Development Program (USD 79m, 2015-2020)** seeks to increase production and efficiency along the rice value chain in Battambang, Kampong Thom, and Prey Veng provinces by (i) strengthening the rice value chain; (ii) improving the legal and regulatory framework in agricultural land management; (iii) improving access to credit by paddy producers and rice millers/exporters; and (iv) enhancing paddy production and productivity through improved irrigation water use efficiency, establishment of paddy post-harvesting facilities, and paddy crop insurance pilots.^[45] The project has contributed to the development of the rice seed policy for Cambodia, including national seed quality standards, seed certification schemes, procedures and guidelines for varietal release, as well as the development of law on agricultural land and law on plant protection and quarantine. Needs assessment and feasibility studies on rice post-harvest management have been conducted and post-harvest handling equipment is being installed in three research stations (one in each target province) to increase the stations' capacities as seed centers. Technical training on quality seed production, implementation of the SRP Standard and laser techniques such as land-leveling have been initiated. The proposed LDCF project will build on and potentially enlarge the geographic scope of these achievements. Specifically the proposed project will further strengthen individual and institutional capacities in implementing SRP standards, piloting economic and environmental indicators to monitor the impact of standard adoption and introduce climate-smart practices and varieties to improve rural resilience.

Funded by ADB and Pilot Program for Climate Resilience (PPCR), the **Greater Mekong Subregion Flood and Drought Risk Management and Mitigation Project** (USD 48m) seeks to improve capacity and preparedness to manage and mitigate the impact of flood and drought events in the Pursat province. To this end, it is rehabilitating an irrigation scheme on the Pursat river to provide wet-season supplemental irrigation for 16,100 ha and full irrigation to a smaller command area during the dry season; installing a new headworks structure to facilitate peak-flood diversion; improving national flood and drought forecasting and establishing a flood and drought warning system; improving FWUCs' capacity to manage drought and flood risk; and improving disaster preparedness of communities. The proposed project will coordinate its weather forecasting, agro-met services, early warning systems and FWUC training activities with this project to prevent overlap and ensure that lessons learned to date are taken on board.

GIZ/ IRRI's **Remote Sensing Based Information and Insurance for Crops in Emerging Economies (RIICE)** is a regional programme covering Cambodia, India, Indonesia, Thailand and Vietnam. It aims to reduce vulnerability of smallholder farmers engaged in rice production. RIICE is developing the technical capacity within MAFF to conduct near-real-time rice monitoring using remote sensing and crop modeling technologies. The technical capacities are then used to design and pilot insurance solutions which can cushion the negative financial effects caused by natural catastrophes for governments, agricultural intermediaries and rural farmers.^[46]

ADB's **Agricultural Value Chain Infrastructure Improvement Project (AVIP, USD 76m)** (under formulation) aims to increase competitiveness and value addition to selected (non-rice) agricultural value chain in the project targeted areas of Kampong Cham, Kampong Thom, Oddar Meanchey, Preah Vihear, Siem Reap and Tboung Khmum. The project will support strengthening of the post-harvest and logistic facilities; improvement of agricultural production and service infrastructure; improvement of rural connectivity; and enhancement of business partnership among value chain stakeholders.

IFAD's **Sustainable Asset for Agricultural Market, Business and Trade project (SAAMBAT, 2020-2025)** (under formulation) aims increase productivity of rural youth, enterprises and the rural economy. SAAMBAT will support investments in climate resilient infrastructure, renewable energy and technical and entrepreneurial capacity of youth to capitalize on emerging opportunities.

3) The proposed alternative scenario

The project's alternative scenario is to increase climate resilience of vulnerable smallholders in rice-based communities faced by increasing climate impacts in the targeted provinces. The project aims to improve livelihoods through income-generating and value-adding activities by improving the enabling environment (including availability of water for irrigation, weather forecasting and agro-met services), promoting climate-resilient on-farm practices, and improving the resilience, efficiency and profitability of the rice value chain. The project will promote new technologies and innovations to strengthen the resilience in production systems and reduce vulnerability to climate risks and hazards. The project will also promote a market-based approach to improve climate resilience through the engagement of local private sector and will enhance the adaptive capacities and livelihoods of the targeted communities through agribusiness and small- and medium-sized agricultural enterprise (SME) development. In particular, the project will seek to impact 5% of the total rice harvested area in the five provinces (67,309 ha), equating to roughly 37,000 rice-based households or 170,200 direct beneficiaries.[\[47\]](#)

The project objective is to build climate resilience into the livelihoods of vulnerable rice-based communities in the Tonle Sap region. This objective and project outcomes are in line with the following priority areas under Cambodia's NDC:

- 'developing climate-proof agriculture systems for adapting to changes in water variability to enhance crop yields'
- 'promoting and improving the adaptive capacity of communities, especially through community based adaptation actions, and restoring the natural ecology system to respond to climate change'
- 'strengthening early warning systems and climate information dissemination'
- 'developing crop varieties suitable to Agro-Ecological Zones (AEZ) and resilient to climate change'
- 'strengthening technical and institutional capacity to conduct climate change impact assessments, climate change projections, and mainstreaming of climate change into sector and sub-sector development plans'.[\[48\]](#)

Furthermore, the project is aligned with and contributes to a number of national strategies and plans related to climate resilience, including the National Strategic Development Plan (NSDP) 2014-2018, Cambodia's Climate Change Strategic Plan 2014-2023 (CCCSP), MAFF's Climate Change Priorities Action Plan (CCPAP), the National Adaptation Plan and Cambodia's National Adaptation Plan of Action (NAPA). Further information on this alignment is provided in section 7 'Consistency with National Priorities'.

Project components and related outputs address the above-mentioned barriers to climate-resilient rice-based livelihoods in the target provinces, and are described below.

Component 1: Improving the enabling environment for climate change adaptation in the rice and related priority sectors through integrated policies and planning will seek to improve the policy environment for integration of climate resilience into targeted sectors. The project will strengthen the capacity of relevant national institutions (particularly MAFF) to integrate climate change actions into their programming using the national budget. Integrated water management in target provinces will be promoted by conducting a stock-take of water availability and use, and providing recommendations for improvement of government irrigation policies, including those related to water governance at meso and micro scales (irrigation/farmer associations). The project will also collect the information on water productivity and water-use efficiency which might be used for decisions regarding construction and rehabilitation of secondary and tertiary irrigation canals, drainage canals and reservoirs.

National and provincial level capacities in weather forecasting, agro-met services and early warning systems will be improved, allowing for better-informed extension services provided under Components 2 and 3. Cross-ministerial and cross-sectoral coordination in climate change adaptation and agriculture will be improved by taking stock of the achievements of the CCCA and collaborating with CCCA to target gaps. Climate vulnerability assessments will be conducted in the targeted provinces in order to inform the development and implementation of community-based adaptation plans and ground-level activities in Components 2 and 3; these assessments will include agricultural AEZ climate modelling for longer-term adaptation planning (e.g. shifting to different crops) as used under USAID Mekong ARCC project. Also, GIZ will set up a pilot Geo Information System workplace with the provincial administration of Banteay Meanchey province which can serve as a model for the integration of economic, climate and agriculture data sets. This connects with ongoing activities, and planned efforts will be made to support the integration of the community-based adaptation plans into the Commune Investment/Development Plans (CIP/CDP). Existing policies for promotion of contract farming and agricultural standards will be reviewed and enhanced towards an incentive mechanism for climate-resilient agricultural production.

Component 2: Supporting resilient production systems in rice-based communities for improved livelihoods will seek to increase resilience and adaptive capacities of rice production systems among vulnerable rice growers in targeted provinces. The SRP Standard will be used as a benchmark for best-practice, and GIZ's and IRRI's expertise will be essential in selecting specific technologies, approaches towards assurance and socially and environmentally sound contract farming.

Firstly, on-farm diversification approaches (including seasonal rotation, cover crops, rice-fish systems, ecological engineering, integrated farming system and vegetable gardens) will be demonstrated and scaled up to improve farmer resilience, particularly of women and women-led households, against climatic variations, improve soil fertility, increase income and improve farmer diet. When selecting approaches to promote crop diversification, attention will be paid to synergies with rice production (e.g. mung beans improving soil fertility), the presence of market for the crop, enhanced nutrition and labour availability at the farm level.

The supply and uptake of premium market rice seeds with tolerance to climatic and biotic stresses will be improved, with focus on varieties developed by CARDI. This will be achieved by i) training of farmer groups in seed production; ii) conducting demonstrations of seeds' effectiveness in increasing yield and reducing the need for pesticide; iii) promoting the use of seeds among large exporters, including Amru and Golden Rice; iv) developing institutional capacities within MAFF to implement seed certification on national and provincial levels; and v) exploring the option of subsidizing premium market varieties in order to reduce price differential with non-premium varieties. The project will collaborate and coordinate with similar activities undertaken by CAVAC, and build on the achievements of and lessons learned from the Government funded Boosting Food Production Programme, the AFD's Support to the Commercialization of Cambodian Rice, IRRI's Accelerating Adoption of Stress-Tolerant Rice Variety project, and ADB's Climate-Resilient Rice Commercialization Sector Development Program.

Other climate-resilient and innovative on-farm practices for rice production will also be promoted via training, demonstrations and financial support. These will include (among others) water-saving practices (laser land levelling, AWD, household reservoirs, drip irrigation, electric pumps); integrated pest management; integrated nutrient management and conservation agriculture; technologies to reduce post-harvest losses (climate-proofed rice drying and storage facilities and combine harvesting machines); and ICT tools for precision decision-making in crop nutrition, water management, pest management and smart harvest scheduling (e.g. AutoMon, Rice Crop Manager, Pest Risk Manager and EasyHarvest). Nature-based solutions will be encouraged where feasible, e.g. the use of companion plants in ecological engineering schemes to support natural enemies and reduce pesticide needs. Improving existing extension services via 'training of trainers', farmer field schools and establishing village-level 'centres of excellence' (where farmers, extension officials and private sector can come together to share knowledge and engage in commercial transaction) will be explored as delivery models. This will be done in close coordination and collaboration with the IFAD/Government's ASPIRE Programme, with strong emphasis on mainstreaming climate resilient practices in the extension services. SRP Standard's economic and environmental indicators such as profitability, water productivity and biodiversity will be taken from plot and landscape levels to document the adoption impacts of climate-resilient practices.

Lastly, the project will seek to improve farmers' access to credit, thus facilitating uptake of above-mentioned technologies and practices. This will be done in collaboration with the Rural Development Bank (RDB), local MFIs and the IFAD AIMS project, and various models will be explored (matching grants, soft loans to agricultural cooperatives, blended finance, etc.).

Component 3: Scaling up adaptation technologies and practices in selected value chains through partnerships, markets and investments will seek to improve the climate resilience, efficiency and profitability of rice and other selected value chains in targeted provinces, covering harvesting, storage, processing and export. This component will use GIZ's long-term experience in building and strengthening rice value chains in Cambodia with different actors including

agricultural cooperatives, rice processors and exporters (e.g. SRP members like Amru Rice and BriCo). The GIZ's Micro, Small and Medium Enterprise Support Programme currently closely works with commercial entities along the value chain and trains SMEs in different topics relevant for SRP.

Firstly, the performance of agricultural cooperatives, including women's cooperatives, will be improved via human capacity development and financial support, in collaboration with similar activities conducted under the ongoing GIZ RED and IFAD AIMS projects.

Contract farming between agricultural cooperatives and rice processors will be demonstrated and upscaled to create further incentives for farmers to engage in climate-resilient and sustainable rice production and reduce incentives for side-selling. This will simultaneously improve processor's access to high-quality paddy delivered on time, enhancing their access to high-value export markets in Europe, China and elsewhere. The incorporation of crop insurance into farming contract will be trialed, further improving farmer resilience against unforeseen weather events and pest invasions (which are expected to worsen with climate change and increased variability).

Participatory Guarantee Systems (PGSs)^[49] for climate-resilient and sustainable rice production will be established at selected agricultural cooperatives, allowing them to work towards SRP adoption. GIZ's experiences in building up guarantee and control systems towards international rice standards and Farmer field schools (with which FAO has extensive experience) will provide the necessary human capacity development to allow agricultural cooperatives to work towards compliance with the SRP Standard.

At the processor level, access to credit will be improved in collaboration with RDB, the IFAD AIMS project (including its Value Chain Innovation Fund) and local MFIs. The barriers of high interest rates and banks' hesitance to lend to agriculture due to the perception of high risk will be explored, with the use of blended finance and bank loan guarantees as potential solutions. This will allow for expansion and climate-proofing of post-harvest handling, collection, storage and drying facilities (with the SRP Standard as the benchmark), whilst also allowing for processors' timely purchasing of paddy rice from farmers (thus facilitating socially and environmentally sound contract farming and reducing side-selling).

In the selected areas and when appropriate, organic- and/or Fairtrade-certified rice value chains (in cooperation with the private sector actor like AMRU) or the successful IBIS Rice model^[50] will be replicated and scaled up. These models will allow farmers to reach niche market with a high premium, and thus improve their income and livelihoods as well as preserving wildlife biodiversity, e.g. the critically endangered Giant Ibis (*Thaumatibis gigantea*), Cambodia's national bird.

Component 4: Building effective knowledge management, innovations and monitoring & evaluation systems will seek to establish effective M&E and knowledge management systems for the project, including dissemination of successful approaches and lessons learned within the region. Project management mechanisms will be established, including tools and approaches for monitoring and tracking project progress. A project-specific communication

strategy and plan will be developed to ensure common understanding of key project messages and activities, with project results and lessons captured and distilled and made available periodically.

4) Alignment with the LDCF strategy, adaptation benefits and GEF focal areas

The proposed project is directly aligned with the overarching goal of the **LDCF/SCCF Programming Strategy 2018-2022**, through its efforts to strengthen resilience and reduce vulnerability of Cambodian communities to adverse impacts of climate change. In response to the enhanced emphasis on private sector engagement in the LDCF strategy, the project is promoting an ecosystem-based and market-driven approach to build resilience in production landscapes and to strengthen the adaptive capacities of local private sector and SMEs. The project's alignment with the two **objectives of the LDCF strategy and consequent adaptation benefits** are outlined below.

LDCF Objective 1: Reduce vulnerability and increase resilience through innovation and technology transfer for climate change adaptation. The project will reduce vulnerability and increase resilience of 37,000 households (170,200 people) and 67,309 ha across five target provinces by promoting the use of socially and environmentally sound contract farming, PGS and SRP certification as well as diversification. These innovative approaches will create incentives for farmers and SMEs to engage in climate-resilient practices such as the use of climate-tolerant seeds by providing a market for rice which has been produced in compliance with strict production standards. In terms of technology transfer, the project will promote a greater uptake of climate technologies which improve climate resilience in rice production and processing, including laser land-levelling (which reduces water use and increases yields), mechanical seeders to increase yields, climate-proofed rice drying and storage facilities to reduce post-harvest losses, and ICT tools for precision decision-making in crop nutrition, pest management and smart harvest scheduling (e.g. Rice Crop Manager, Pest Risk Manager and EasyHarvest). The transfer and dissemination of climate technologies for vegetable value chains will also be promoted.

LDCF Objective 2: Mainstream climate change adaptation and resilience for systemic impact. At the rice farm and processing levels, adaptation and resilience will be mainstreamed by encouraging compliance with the SRP Standard, which contains a range of resilience measures. At the community level, efforts will also be made to support the integration of the community-based adaptation plans into the commune investment and development plans. At the national level, the project will strengthen the capacity of the national institutions (particularly MAFF) to integrate climate change actions into their programming. At the regional level, lessons learned from the project will be disseminated via communications material, encouraging uptake of successful practices in other projects. The project is also expected to contribute to strengthening regional and global partnerships, innovations and knowledge sharing through its engagement with the SRP. Furthermore, the project will seek to improve a number of enabling conditions for climate change adaptation in the rice sector, including integrated water management, and national and provincial capacities in weather forecasting, agro-met services and early warning systems, as well as through diversification strategies. Cross-ministerial and cross-sectoral coordination in climate change adaptation and agriculture will be improved by taking stock of the achievements of the Cambodia Climate Change Alliance (CCCA) and collaborating with CCCA to target gaps.

Alignment with GEF focal areas

In addition to the adaptation benefits outlined in the above, the project will also generate co-benefits that contribute to the GEF focal areas of the **GEF-7 Programming Directions**.

With regards to land restoration and biodiversity, the project will help to improve food production and livelihoods through sustainable land management, by promoting sustainable rice cultivation practices and crop diversification. The project will also reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape. By increasing rice farmer income, the project will reduce pressure on nearby protected areas, thus reducing deforestation and contributing to wildlife conservation, including habitats of the critically endangered Bengal florican (*Houbaropsis bengalensis*). The project will also help to conserve and promote the sustainable use agro-biodiversity through diversification and uptake of climate-resilient varieties, thereby contributing to the ecological integrity and sustainability of the Tonle Sap ecosystem.

As for climate change mitigation, the project is expected to lead to reduced methane emissions from paddy fields through introduction of technologies for improved water and organic inputs, including alternate wetting and drying (AWD). The project will also help to enhance water security in the Tonle Sap freshwater ecosystem through improvements in integrated water management and early warning systems. Finally, the project will contribute to strengthening the sound management of agricultural chemicals and their wastes via promotion of integrated pest management and the correct use of fertilizer.

5) Incremental/additional cost reasoning and expected contributions from the baseline, the LDCF and co-financing

In the baseline scenario, Cambodia faces increasing climate change vulnerability including in its efforts to increase rice production. Low capacity and insufficient access to technologies, compounded by an inadequate policy environment, keep producers in a situation of high vulnerability to climate risks and lead to a gradual decline in agricultural-based livelihoods. Without the LDCF intervention, Cambodia's agriculture sector will increasingly suffer under the impacts of climate change. Agricultural production and livelihoods, particularly the majority of smallholders in rural areas, will remain impacted by a variety of climate hazards.

In terms of alternative sources of financing for the project, private investment to support smallholder producers and SMEs in the forms of technology transfer, contract farming arrangements at scale, etc. is currently unlikely due to the investment risk involved (at least in the short-term, given coordination problems and prevailing insecure property rights). In addition, project cost recovery is not possible because the project will not impose any financial charges on climate-vulnerable people to be targeted by the project interventions. Because of the small size of landholdings and high levels of poverty in the target provinces, farmers currently do not have the resources to climate-proof their agricultural practices and businesses without external support. Given Cambodia's status as a least developed country, the available public budget to support the types of activities envisioned in the project is limited.

The project will not take place without involvement of the LDCF. Other key donors supporting agricultural development are focusing their support on programmes/projects where climate change issues are subordinated to other sector priorities, e.g., food security, value chain development and rural finance. This project is fundamentally different as it subordinates investment measures to institutional development and mainstreaming related to addressing near and longer-term climate change related risks for rice-based communities.

In addition to projects listed as sources of co-financing (described in section C and table 1), the LDCF project builds on, and is complemented by, the efforts of several ongoing baseline projects:

- Developing recommendations for construction, rehabilitation and O&M of secondary and tertiary canals (Component 1), dissemination and promotion of climate-resilient rice seeds, mechanical seeders and electric pumps, and training farmers in the correct use of pesticide (Component 2) will be coordinated with GIZ RED and Phase II of CAVAC, which are undertaking similar activities.
- By improving rice farmer income and thus reducing incentives to venture into protected areas for alternative sources of income and food (e.g. logging, hunting), the project will complement World Bank's Cambodia Sustainable Landscapes and Ecotourism project.
- Promotion of on-farm diversification (Component 2) will be coordinated with the upcoming Cambodia Agriculture Sector Diversification project.
- The efforts to improve access to credit for farmers (Component 2) and processors (Component 3) will be coordinated with IFAD AIMS project, which is providing matching grants and funding to RDB to provide lines of credit to cooperatives and producer groups.
- The project will ensure close communication and coordination with ADB's Climate-Friendly Agribusiness Value Chains Sector Project (which is promoting climate-smart agriculture chains in Kampong Cham, Tboung Khmum, Kampot and Takeo provinces) to ensure uptake of successful practices and avoid overlap in national-level climate mainstreaming activities. Initial discussions with the ADB lead officer have commenced, and the fact that MOE and MAFF are executing agencies for both projects will simplify future coordination.
- The proposed project will coordinate its weather forecasting, agro-met services, early warning systems and FWUC training activities (Output 1) with the ADB-PPCR project on Flood and Drought Management in Pursat Province to prevent overlap and ensure that lessons learned to date are taken on board.
- The promotion of crop insurance under Component 3 will include collaboration with RIIICE, ADB's Climate Resilient Rice Commercialization Sector Development Program, and the DE-Risk project.
- Introduction of land laser-levelling will complement the RIICE project, which lacks on-farm intervention in water management to reduce vulnerability of smallholders.

7) Innovation, sustainability and potential for scaling up

Innovation

The project is innovative in that it takes an ecosystem-based and market-driven approach to build resilience in production systems and value chains to enhance the adaptive capacities of vulnerable, rice-based communities.

The project will deliver innovative dry-season, climate-resilient agriculture practices and technologies to farmers, designed to adapt to increasing heat and drought conditions and consequent reduced availability of water. It will reduce costs and risks associated with the adoption of climate-resilient production systems in the target provinces by removing information, financial and institutional barriers to their adoption. Through the SRP, environmental indicators will also be collected to provide simple measures of the environmental impacts from diversified cropping systems across the landscapes in the Tonle Sap Region.

Supporting these cropping systems are innovations that will be further developed in Cambodia, including remote sensing based information to map or predict cropping and damage coupled with insurance coverage systems (e.g. RIICE). Innovations that support the efficient use of inputs can also be introduced such as AutoMon, automated monitoring for improved water management; and Rice Crop Manager, app-based and site-specific recommendations for fertilizer use.

This project expands the positive impacts of adaptation technologies and practices tested in Cambodia, by linking these practices with incentive mechanisms that ensure profits from such practices accrue to the producers, as well as others in the value chain. Approaches such as the contracts through PGS and the SRP Standard vertically connect producers with other value chain actors. These mechanisms ensure that standards of sustainable practices are being followed, and market incentives for safe and sustainably-produced food exist to encourage and sustain these practices.

Sustainability

Through the Sustainable Rice Platform (SRP), the involvement of value-chain stakeholders at various scales and with a commitment to environmental sustainability, food safety and quality, and economic benefits for smallholders will create incentives to encourage climate-resilient practices and investments in adaptation technologies along the value chain. This will also help to incentivize private sector investments, including for climate-resilient post-harvest technologies. Such links, coupled with enabling policies and alignment with national programmes, will help to ensure sustainability of the initiatives established by the project beyond project closure.

Government extension staff, lead farmers in agricultural cooperatives and SMEs will be trained in adaptation measures, creating a core of highly qualified staff which can pass on this knowledge to other extension workers and farmers. Establishment of farmer field schools and village-level 'centres of excellence', and with the targeted inclusion of women will also contribute to dissemination of knowledge on climate-resilient practices and agribusiness development, after project completion. Working with MAFF officials, the project will seek to secure future government budget allocations for the continuation of improved extension services and other initiatives pursued by the project, after project closure.

In terms of financial sustainability, existing studies of yield improvements and cost reductions delivered by SRP-compliant farm practices (in terms of gross margins of crop financial budgets) indicate that farmers have a clear financial incentive to undertake climate-resilient practices even in the absence of premiums. By promoting socially and environmentally sound contract farming and the uptake of PGS and the SRP assurance scheme, the project will facilitate a steady market for rice produced in a sustainable and climate-resilient way, creating further incentives for farmers to continue with climate-resilient practices while also improving investment in post-harvest infrastructure, after project completion.

No major infrastructure works are envisaged under the project; consequently, there are no long-term implications of the project from the government's budgetary perspective.

Scaling up

The project will scale up climate-resilient agriculture practices and technologies for rice production that are suited to wider dissemination and large-scale adoption in Cambodia. By illustrating that these technologies lead to increased farmer incomes, improved value chain efficiency and reduction in income variance, the project will promote their uptake in other areas of Cambodia, and potentially in neighbouring countries.

Two parallel strategies can further support the upscaling of adaptation measures promoted by this project. One is the proliferation of private-sector links for farmer groups and SMEs to integrate with markets and industries that support sustainable practices. The other is the integration of such practices and technologies within national development programmes implemented by government and other partners.

Component 4 will capture the insights that can be shared with government agencies and development partners for potential inclusion in similar projects in Cambodia and elsewhere in South-East Asia. The project will develop a monitoring and evaluation plan and an accompanying strategy for sharing lessons learned, so that they can be shared with stakeholders to ensure effective dissemination of project findings and promote the uptake of successful and innovative practices by the government and other projects. The project will also work to ensure that project outcomes influence future public and private investments in the agriculture sector by establishing methods, processes and guidance to allow for mainstreaming of climate-resilient rice production into policy planning and master planning processes.

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[48] Royal Cambodian Government, 'Cambodia's Intended Nationally Determined Contribution', 2015.

[49] PGS is a low-cost, locally-based alternative to third-party certification, which targets smallholders and local markets. It involves peer farmers and other stakeholders (rather than third-party auditors) conducting audits of farms to check compliance with the agricultural standard in question. The PGS approach has been piloted by FAO and ADB in Cambodia and Lao PDR via the 'Small-scale Farmer Inclusion in Organic Agriculture Value Chain Developments through PGS' project (2015-2017), targeting organic production of vegetables. Source: FAO, 'Participatory Guarantee Systems (PGS) for Sustainable Local Food Systems', <http://www.fao.org/3/I8288EN/i8288en.pdf>

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1b. Project Map and Coordinates ⓘ

Please provide geo-referenced information and map where the project interventions will take place.

The project will cover an approximate area of 67,309 ha across five provinces around Tonle Sap Lake: Pursat, Battambang, Banteay Meanchey, Siem Reap and Kampong Thom. The exact project site location and coordinates will be determined during the PPG phase. The project map is provided in Annex A.

For now, here is Tonle Sap ID number: 1821300

2. Stakeholders ⓘ

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

As part of the PIF formulation, the project team consulted relevant central-level government ministries, private sectors, DPs and NGOs through bilateral meetings and in a stakeholder consultation workshop, which was organized on the 25 March in Phnom Penh. The main stakeholders engaged include MAFF in particular the General Directorate of Agriculture (GDA), MoE particularly General Directorate for Local Community (GDLC), Ministry of Water Resources and Meteorology (MOWRAM), Ministry of Economy and Finance (MEF), Ministry of Commerce (MOC) and Council for Agricultural and Rural Development (CARD). Consultations with private-sector include representatives of the Cambodian rice industry (Amru Rice and Cambodia Rice Federation), with donor and research agencies and donor-funded projects including those supported or implemented by the World Bank, AFD, ADB, IFAD, FAO, CAVAC, IRRI and GIZ and NGOs (WCS). Scoping missions to the proposed project sites as part of PPG phase will include in-depth consultations with local civil society groups, local communities, private-sector representatives (including rice processors and traders), and provincial-, district- and commune-level government officials from the above-mentioned ministries. Efforts will be made to ensure that women are well represented and actively participate in the consultations.

3. Gender Equality and Women's Empowerment

Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

The project will follow the guidance and recommendations of both the GEFs and FAOs Policy on Gender Equality, along with the GEF Gender Implementation Strategy and gender-responsiveness will be a guiding principle throughout the entire project. A gender analysis will be conducted during project preparation, identifying the share of women in the populations of the targeted communes, the number of female-headed households, and gender-disaggregated levels of financial literacy and entrepreneurship skills. By taking a gender-responsive approach, efforts will be made to ensure that women are well represented and actively participate in the consultations undertaken as part of project preparation, including consultations with women-only groups. The extent to which women in project areas are affected by climate-related events (flood, droughts) and by consequent impacts on agricultural production will be studied during project preparation and will inform project design.

To ensure that women benefit from yield increases and improved climate resilience of rice cultivation and diversification delivered by the project, the final project design will include a requirement that at least 40% of the local residents receiving training in seed production, climate-resilient on-farm practices (Component 2) and internal control systems for rice farming (Component 3) are women. Recommendations for improving operation of Farmer Water User Communities (FWUCs) (Component 1) will include requirements for strong women participation in FWUC decision-making and operations, e.g. a requirement that at least 30% of members of the FWUC management committee are women.

As part of improving capacity of agricultural cooperatives and SMEs (Component 3), communication and educational materials will be prepared about the importance of women as economic actors (including holding management positions in agricultural cooperatives) and having equal access to and control over resources. Awareness raising on these topics will then be conducted.

To ensure that women benefit equally from contract farming and PGSs to be established under the project (Component 3), the project will provide gender-sensitized financial literacy training to women and men, and ensure strong women participation in contract negotiations with rice processors and PGS training conducted by farmer field schools.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes

closing gender gaps in access to and control over natural resources; Yes

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

The project seeks to improve climate resilience of cultivation and processing of rice and other crops, which are essentially private-sector activities undertaken by smallholders, SMEs and processing/exporting companies, respectively. Private sector will therefore play a key role in the project, which takes a market-based approach to improve climate resilience through the engagement of local private sector by enhancing the adaptive capacities and livelihoods of the targeted communities through agribusiness and SME development. The promotion of socially and environmentally sound contract farming, PGs and SRP assurance (Component 3) will necessarily involve smallholders, SMEs and rice processors such as Amru Rice and Golden Rice; a representative of Amru Rice has expressed his interest in participating in the project during PIF consultations. Furthermore, strengthening agribusiness opportunities through diversification (Component 2) will also contribute to local private sector development, particularly for women and women-led households. Specific agricultural cooperatives and rice processors to be engaged during the project and their respective roles and contributions will be identified during the project preparation stage. Finally, the project is expected to foster private sector engagement through the SRP members and network.

5. Risks

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Risks	Assessment with out mitigation	Management plan or measures	Assessment with mitigation
Risks to project implementation			
Financial management and procurement systems slow and/or ineffective	High	Financial management and procurement assessments are undertaken and manuals drafted as part of project management (Component 4).	Medium
Weak capacity of extension officials to promote climate-resilient on-farm practices	Medium	'Training of trainers', farmer field schools and village-level 'centres of excellence' established (Component 2)	Low
Inadequate supply of premium fragrant rice seeds with tolerance to climatic and biotic stresses (Component 2)	High	Consultations will be held with CARDI (the primary seed supplier) during project preparation to identify supply capacity, and interventions agreed upon if capacity is low.	Low
Agricultural cooperatives unwilling to honour contracts with processors, and vice versa (Component 3)	High	The project will engage agricultural cooperatives with strong leadership and a good track record of delivering rice to millers. The project will engage reputable rice processors with a legitimate interest in socially and environmentally sound contract farming.	Low
Insufficient farmer interest in Participatory Guarantee Systems (PGSs) (Component 3)	High	Lessons learned from PGS implementation in Cambodia's vegetables sector will be taken onboard during PGS design. Agreements to purchase PGS-certified rice at a premium will be reached with participating processors.	Medium
Efforts to improve farmer and processor access to credit crowd out private-sector financing	Medium	A study on obstacles to private-sector financing will be conducted during project preparation to determine appropriate loan volumes and interest rates.	Low

Social and gender impacts			
Women benefit less than men from yield increases and improved climate resilience of rice cultivation delivered by the project	Medium	The final project design will include a requirement that at least 40% of the local residents receiving training in seed production, climate-resilient on-farm practices (Component 2) and internal control systems for rice farming (Component 3) are women.	Low
Women benefit less than men from capacity building activities targeting agricultural cooperatives	Medium	Communication and educational materials prepared, and awareness raising held about the importance of women as economic actors (including holding management positions in agricultural cooperatives) and having equal access to and control over resources.	Low
Women benefit less than men from contract farming and PGSs to be established under the project	Medium	The project will provide gender-sensitized financial literacy training to women and men, and ensure strong women participation in contract negotiations with rice processors and PGS training conducted by farmer field schools.	Low
Environmental impacts			
The promotion of the use of electric pumps (Component 2) may result in unsustainably high water withdrawals	Medium	The project will conduct a stock take of water availability and use in target districts, and providing recommendations on the appropriate levels of water withdrawal for irrigation (Component 1).	Low

6. Coordination

Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

To ensure satisfactory delivery, monitoring and reporting of project outputs, a Project Steering Committee (PSC) and a Project Implementation Unit (PIU) will be established within the first six months of the project.

The PSC will provide policy and strategic advice for project implementation, and communicate project outcomes with other ministries. It will comprise representatives (at the director level) of MAFF, MOE, MOWRAM, Ministry of Rural Development (MRD), Ministry of Women's Affairs (MOWA) and Ministry of Economy and Finance (MEF), as well as representatives of the provincial governments in targeted provinces, leaders of agricultural cooperatives, and civil society and private-sector stakeholders.

Responsibilities of the PIU will include project implementation planning, budgeting, preparation of bidding documents for all services to be procured, awarding contracts, engaging consultants, assuring quality assurance for all project-financed activities, disbursement of funds, assuring compliance with due diligence, liaising with relevant ministries and their provincial agencies, establishing project performance and financial management systems, and assuring regular progress reporting to provincial and national authorities as well as financing institutions. The PIU will appoint incremental staff to assist in day-to-day project management activities. The PIU will be supported by project management and implementation consultants.

The project will coordinate with relevant agencies and projects (described above and in the section on associated baseline projects) to avoid overlap and double-spending of resources. Synergies and areas for collaboration with these other initiatives will be mapped during the PPG phase, with agreement on common activities and cost-sharing explored and agreed. In particular, close coordination with the GCF-supported Climate-Friendly Agribusiness Value Chains Sector Project and the PPCR project in Pursat Province will be ensured to enhance complementarity, maximize the uptake of successful practices and avoid duplication of climate mainstreaming activities. Discussions with ADB have commenced to ensure coordination and synergies among the projects and the fact that MOE and MAFF are executing agencies for both the LDCF and GCF projects will simplify future coordination.

Preparation of the project implementation plan and schedule will be completed within the first six months of the project. It will involve all the key stakeholders at ministerial, provincial, district and commune levels, with PIU taking the lead. The project reporting system will be based on the monitoring and evaluation system, and will include quarterly, annual, mid-term and final reports. During the first year of the project, a baseline survey will be completed to ensure that project progress can be properly assessed.

The project will also ensure close coordination with the following GEF-LDCF initiatives to maximize project outcomes and sharing of lessons learned:

UNDP: Reducing the Vulnerability of Cambodian Rural Livelihoods through Enhanced Sub-National Climate Change Planning and Execution of Priority Actions (2016-2020): The project aims to reduce the vulnerability of rural Cambodians, especially land-poor, landless and/or women-headed households. This will be achieved through investments in small-scale water management infrastructure, technical assistance to resilient agricultural practices, and capacity building support, especially targeting poor women, for improved food production in home gardens. These services will be delivered by sub-national administrations with a view to strengthen their overall capacity to plan, design and deliver public services for resilience building. The objective of the project, therefore, is to improve sub-national administration systems affecting investments in rural livelihoods through climate sensitive planning, budgeting and execution.

FAO: Strengthening the adaptive capacity and resilience of rural communities using micro-watershed approaches to climate change and variability to attain sustainable food security in Cambodia (2015-2020): The project aims to build adaptive capacity of rural communities and reduce their vulnerability to climate change and variability through integrated micro-watershed management and climate resilient agriculture practices to ensure food security in four communes of Siem Reap, Preah Vihear, Kampong Thom and Ratanakiri. The results from this project will be replicated and up-scaled to other sites especially the promotion of the adoption of climate-smart agriculture (CSA). The curriculum of farmer field schools on CSA has been developed, tested and is being validated.

UNDP: Strengthening Climate Information and Early Warning Systems to Support Climate-Resilient Development in Cambodia (2015-2019): The project aims to bridge existing gaps in institutional capacity, inter-ministerial coordination, and infrastructure. It will enhance the inclusion of climate change considerations in short and long term planning, sectoral planning and other decision-making processes. Data generated through installed hardware, along with risk mapping and forecasted data will be made available to specifically benefit agriculture and water management sectors in their planning processes. Agrometeorological Stations (AWS) and Automatic Hydrological Stations (AHS) will be installed in various locations in the Provinces of Preah Vihear, Kampong Thom, Kampong Speu, Kandal, Phnom Penh, Takeo, Kampot, Kep, Preah Sihanouk Ville and Koh Kong.

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions

Yes

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

At national level, Cambodia has endorsed its **National Strategic Development Plan 2014-2018 (NSDP)**, outlining its main development priorities for reducing poverty and fostering economic growth. The proposed project is fully aligned with priority strategies for the agriculture sector, which aim at scaling up the application of new technologies and techniques, mechanization and irrigation to improve the yield rate, and diversify activities into high value crops in an environmentally sustainable manner. The NSDP also underscores the increasing impacts from climate change and outlines the need for integration of climate resilience in a number of initiatives for the agriculture sector, which all correspond to the planned interventions of this project.

The proposed project will contribute towards the implementation of **Cambodia's Climate Change Strategic Plan 2014-2023 (CCCSP)** as it directly corresponds to five out of 8 strategic objectives, including the following: "Promote climate resilience through improving food, water and energy security" and "Ensure climate resilience of critical ecosystems (including Tonle Sap)". A number of strategies have been listed as a means to achieve each objective and these strategies are in several cases linked to the activities and outputs of the LDCF project.

At the sectoral level, a **Climate Change Priorities Action Plan (CCPAP)** has been developed by the MAFF for the agriculture, forestry and fisheries sector (2016-2020), which identifies the priority actions necessary to deliver the CCCSP strategies and priorities. The goal of MAFF's CCPAP is to contribute to the reduction of climate change impacts and vulnerability of the agriculture sector while increasing adaptation and DRR as well as climate change mitigation. The CCPAP outlines a number of strategies and list the expected impacts in which the proposed project will directly contribute towards the implementation of strategies for agriculture and agro-industries as well as the achievement of expected impacts. These include increases in agricultural outputs and rice yields; increases in beneficiary income in climate vulnerable areas as well as increased employment in agribusiness and agro-industries, increased area planted with resilient cash crops; reduced crop losses from climate hazards; increased number of agribusiness SMEs; 5 million farmers receive extension services on improved climate resilience; and 100 communes and CBOs have integrated adaptation and DRR into their CDP, CIP and community-based development action plans and implement those plans. The proposed LDCF project is expected to be instrumental in terms of operationalizing the relevant strategies that have been prioritized in the CCPAP.

The proposed project is also in alignment with Cambodia's submissions under the UNFCCC. In its **Nationally Determined Contribution (NDC)**, Cambodia highlights the agriculture sector as one of the most vulnerable to the impacts of climate change due to the dependence of most of country's production systems on the hydrological cycle of the Tonle Sap Lake. The NDC outlines a selected number of priority adaptation actions in which this LDCF project will directly and indirectly contribute to their implementation. This includes measures such as: "Promoting and improving the adaptive capacity of communities, especially through community based adaptation actions, and restoring natural ecology system to respond to climate change"; "Developing climate-proof agriculture systems for adapting to changes in water variability to enhance crop yields"; "Developing crop varieties suitable to Agro-Ecological Zones (AEZ) and resilient to climate change" and "Strengthening technical and institutional capacity to conduct climate change impact assessments, climate change projections and mainstreaming of climate change into sector and sub-sector development plans". The NDC will be delivered through the implementation of the CCCSP, including through its sectoral implementation vehicles, the CCPAPs.

Cambodia has also initiated the **National Adaptation Plan (NAP)** process in order to further integrate climate change adaptation into sectoral policy and budget planning, towards meeting its medium- to long-term adaptation needs. The NAP process builds its thematic objectives and priorities on the CCCSP and the CCPAPs, which the project is aligned to as outlined in the above. Furthermore, Component 1 and 4 of the proposed project are also expected to contribute towards implementation of the NAP roadmap including through coordination with the Cambodia Climate Change Alliance (CCCA).

Cambodia submitted its **Second National Communication (SNC)** under the UNFCCC in 2015, which provided an assessment of vulnerabilities and climate change impacts across four sectors including agriculture. The SNC validated the large scale impacts climate change will have in Cambodia, including losses in agricultural yields and increased water deficits, underscoring the relevance of the proposed LDCF project.

The proposed project is aligned to one of the two prioritized sectors identified through Cambodia's **Technology Needs Assessment (TNA)** for adaptation technologies. Water technologies for agriculture represent a key priority for adaptation and it is expected that this project will help to address the barriers for transfer and diffusion of water saving technologies in the agriculture sector, particularly for rice.

Finally, the proposed project is also aligned both thematically and geographically with a number of priorities outlined in Cambodia's **National Adaptation Programmes of Action (NAPA)** from 2006. In particular, the project will contribute to the implementation of priorities aimed at strengthening community preparedness in water storage capacity and management as well as priorities for increasing agricultural productivity, in efforts to improve farmers' incomes, food security and livelihoods in the areas affected by flood and drought.

8. Knowledge Management

Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

A knowledge management strategy will be formulated during PPG, outlining the main steps for operationalizing Component 4 and to ensure the effective delivery of the component's outputs and outcome. The strategy will also propose the most efficient ways to synthesize and effectively utilize the knowledge generated from the project's 3 other components throughout the project cycle and outline mechanisms for strengthening knowledge-sharing and dissemination as well as peer-to-peer learning.

As part of its knowledge management approach, the project will coordinate closely with other initiatives to strengthen stakeholder-access to updated information, knowledge sharing and learning opportunities. In particular, the project will capture and build on lessons learnt from other initiatives while also contribute to enhance the evidence-base and sharing of knowledge among wider stakeholder groups. For instance, at the national level the project will benefit from information and knowledge sharing through the CCCA platform, while at the community-level, lessons learnt on best approaches and innovations (including for rice sector commercialization) from ADB and IFAD-funded initiatives will inform the project during design and implementation. Detailed activities include the following:

- Methodologies for conducting a stock-take of water availability and use, and providing recommendations for improvement of government irrigation policies (Component 1) will be shared with DOWRAM offices in other provinces for equivalent future activities.

- The methodologies and findings of climate vulnerability assessments in targeted provinces (Component 1) will be widely disseminated across ministries (particularly MOE and its district offices) to inform similar future activities in other provinces.

- As mentioned in the description of Component 1, GIZ will set up a pilot Geo Information System workplace with the provincial administration of Banteay Meanchey province which can serve as a model for the integration of economic, climate and agriculture data sets.

- Lessons learned from on-farm diversification, promoting climate-resilient rice seeds and promoting climate-resilient and innovative on-farm practices (Component 2) will be disseminated to and discussed with ongoing projects and programs (CAVAC, ASPIRE) to inform their work.

- The project's activities to improve farmers' access to credit (Component 3) will both be informed by and provide lessons for ongoing research by CGIAR and FAO.

- The project will also collect and disseminate valuable data to assist with bottom-up development of government policies, including i) interactions between rice growers and buyers as part of Component 3, and ii) experience with piloting insurance products

- rice yield data produced by the RIICE project will be used to monitor the impacts of climate resilience practices promoted under Component 2

Additionally, it is expected that the project will contribute to and benefit from knowledge dissemination through the SRP. The SRP plays an important role in integrating research with private sector opportunities, and the technical knowledge, innovations and best management practices emerging from the project along with others in SRP partnership will of key value. For instance, the project's experience in promoting PGSs and SRP Standard adoption will be documented and used to inform future PGS and SRP activities in Cambodia and the region, including:

- collection of data of farmer activities and consequent compliance with the SRP standard to inform the development of Cambodia's national SRP chapter
- collection of data on SRP indicators, including biodiversity, water use, etc. to allow policy makers to identify the impacts of SRP certification

Project monitoring and evaluation

The project will develop an M&E plan and an accompanying strategy for sharing lessons learned, so that they can be shared with stakeholders to ensure effective dissemination of project findings and promote the uptake of successful practices by the government and other projects. The project will also work to ensure that project outcomes influence future public and private investments in the agriculture sector by establishing methods, processes and guidance to allow for mainstreaming of climate-resilient production systems and value chains into policy planning and master planning processes.

The project will produce semiannual, mid-term and final reports which will be shared with stakeholders to disseminate lessons learned. If successful, the project will also deliver knowledge products and events on its activities and results, thus showcasing and promoting the uptake of its methodology.

The climate-proofing techniques and technologies applied by the project will be documented in project reports, facilitating their take-up in similar projects. The project will also produce training materials that will incorporate climate change adaptation elements; these will be disseminated among various Cambodian government agencies and development partners.

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Tin Ponlok	Secretary General, National Council for Sustainable Development and GEF Operational Focal Point	Ministry of Environment	4/4/2019

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place



